WHAT WE CLAIM IS:

1. A DNA molecule, characterized in that it comprises a sequence according to SEQ ID NO 1 with an open reading frame from base pair 211 to base pair 1740, or is at least 50% homologous with the above sequence, or hybridizes with the above sequence under stringent conditions, or comprises a sequence which has degenerated to the above DNA sequence due to the genetic code, with the sequence coding for a plant protein having fucosyl transferase activity or being complementary thereto.

2. A DNA molecule according to claim 1, characterized in that it codes for a protein having GlcNAc-α1,3-fucosyl transferase activity, particularly core-α1,3-fucosyl transferase activity.

3. A DNA molecule according to claims 1 or 2, characterized in that it is at least 70-80%, particularly preferably at least 95% homologous with the sequence according to SEQ ID NO 1.

4. A DNA molecule according to any one of claims 1 to 3, characterized in that it comprises 2150 to 2250, particularly 2198 base pairs.

5. A DNA molecule, characterized in that it comprises a sequence according to SEQ ID NO 3, or comprises a sequence which is at least 85%, particularly at least 95% homologous with the above sequence or hybridizes with the above sequence under stringent conditions or has degenerated to the above DNA sequence due to the genetic code.

6. A DNA molecule, characterized in that it comprises a partial sequence of a DNA molecule according to any one of claims 1 to 5 and has a size of 20 to 200, preferably 30 to 50 base pairs.

7. A DNA molecule according to any one of claims 1 to 6, characterized in that it is covalently associated with a detectable marker substance.

8. A biologically functional vector, characterized in that it comprises a DNA molecule according to any one of claims 1 to 7 or parts thereof of different length having at least 20 base pairs.

9. A biologically functional vector, characterized in that it comprises a DNA molecule according to any one of claims 1 to

7 or parts thereof of different length being inversely orientated with respect to the promotor.

10. A DNA molecule according to any one of claims 1 to 7, characterized in that said DNA sequence comprises a deletion, insertion and/or substitution mutation.

11. A DNA molecule coding for a ribozyme, characterized in that it has two sequence sections, each of which has a length of at least 10 to 15 base pairs and which are complementary to the sequence sections of a DNA molecule according to any one of claims 1 to 7 so that said ribozyme complexes and cuts the mRNA transcribed by a natural GlcNAc-α1,3-fucosyl transferase DNA molecule.

12. A biologically functional vector, characterized in that it comprises a DNA molecule according to claims 10 or 11.

13. A method of preparing a cDNA comprising a DNA molecule according to any one of claims 1 to 5, characterized in that RNA is isolated from insect or plant cells, particularly from hypocotylous cells, and with said RNA a reverse transcription is effected after the addition of a reverse transcriptase and primers.

14. A method of cloning a GlcNAc-α1,3-fucosyl transferase, characterized in that a DNA molecule according to any one of claims 1 to 5 is cloned into a vector subsequently transfected into a host cell or a host, with cell lines being obtained by means of selection and amplification of transfected host cells, which cell lines express the active GlcNAc-α1,3-fucosyl transferase.

15. A method of preparing recombinant host cells, particularly plant or insect cells, or plants or insects, respectively, wherein the production of GlcNAc-α-1,3-fucosyl transferase is suppressed or completely stopped, characterized in that at least one of the vectors according to claims 8, 9 or 12 is inserted into said host cell, or plant or insect, respectively.

16. A method of preparing recombinant host cells, particularly plant or insect cells, or plants or insects, respectively, characterized in that the DNA molecule according to claim 10 is inserted into the genome of said host cell, or plant or insect, respectively, at the position of the non-

mutated, homologous sequence.

17. Recombinant plants or plant cells, characterized in that they are prepared according to a method according to claims 15 or 16 and that their GlcNAc-α1,3-fucosyl transferase production is suppressed or completely stopped.

18. Recombinant insects or insect cells, characterized in that they are prepared according to a method according to claims 15 or 16 and that their GlcNAc-α1,3-fucosyl transferase production is suppressed or completely stopped.

19. A PNA molecule, characterized in that it comprises a base sequence complementary to the sequence of a DNA molecule according to any one of claims 1 to 6 and partial sequences thereof.

20. A PNA molecule, characterized in that it comprises a base sequence corresponding to the sequence of a DNA molecule according to any one of claims 1 to 6 and partial sequences thereof.

21. A method of producing plants or insects, or cells, respectively, particularly plant or insect cells having blocked expression of GlcNAc-α1,3-fucosyl transferase at the transcription or translation level, characterized in that PNA molecules according to claims 19 or 20 are inserted into the cells.

22. A method of producing recombinant glycoproteins, characterized in that the system according to claims 17 or 18 or plants or insects, or cells, respectively, which are prepared according to a method according to claim 21, is (are) transfected with the gene that expresses the glycoprotein so that the recombinant glycoproteins are expressed.

23. A method of producing recombinant human glycoproteins, characterized in that the system according to claims 17 or 18 or plants or insects, or cells, respectively, which are prepared according to a method according to claim 21, is (are) transfected with the gene that expresses the glycoprotein so that the recombinant glycoproteins are expressed.

24. A method of producing recombinant human glycoproteins for medical use, characterized in that the system according to claims 17 or 18 or plants or insects, or cells, respectively, which are prepared according to a method according to claim 21,

is (are) transfected with the gene that expresses the glycoprotein so that the recombinant glycoproteins are expressed.

25. Recombinant glycoproteins, characterized in that they are prepared according to the method according to claim 22 in plant or insect systems and that their peptide sequence has less than 50%, particularly less than 20%, particularly preferably 0% of α1,3-bound fucose residues present in proteins expressed in non-fucosyl transferase reduced plant or insect systems.

26. Recombinant human glycoproteins, characterized in that they are prepared according to the method according to claim 23 in plant or insect systems and that their peptide sequence has less than 50%, particularly less than 20%, particularly preferably 0% of α1,3-bound fucose residues present in proteins expressed in non-fucosyl transferase reduced plant or insect systems.

27. Recombinant human glycoproteins for medical use, characterized in that they are prepared according to the method according to claim 24 in plant or insect systems and that their peptide sequence has less than 50%, particularly less than 20%, particularly preferably 0% of α1,3-bound fucose residues present in proteins expressed in non-fucosyl transferase reduced plant or insect systems.

28. A pharmaceutical composition, characterized in that it comprises recombinant glycoproteins according to any one of claims 25 to 27.

29. A method of selecting DNA molecules coding for a GlcNAc-α1,3-fucosyl transferase, in a sample, characterized in that DNA molecules according to claim 7 are added to said sample, which molecules bind to the DNA molecules coding for a GlcNAc-α1,3-fucosyl transferase.

30. A method according to claim 29, characterized in that said sample comprises genomic DNA of a plant or insect organism.

31. DNA molecules coding for a GlcNAc-α1,3-fucosyl transferase, characterized in that they are selected according to the method according to claims 29 or 30 and are subsequently isolated from the sample.

32. A preparation of GlcNAc-α1,3-fucosyl transferase cloned according to a method according to claim 14, characterized in

that it has isoforms having pI values of between 6.0 and 9.0, particularly between 6.8 and 8.2.

33. A preparation according to claim 32, characterized in that it has isoforms having pI values of 6.8, 7.1 and 7.6.

34. A method of preparing plantified carbohydrate units of human and other vertebrate glycoproteins, characterized in that to a sample comprising a carbohydrate unit or a glycoprotein, respectively, are added fucose units and GlcNAc-α1,3-fucosyl transferase coded by a DNA molecule according to any one of claims 1 to 7 so that fucose is bound to said carbohydrate unit or said glycoprotein, respectively, at the α1,3-position by said GlcNAc-α1,3-fucosyl transferase.

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